

## CLAIMS

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1. An apparatus for maintaining a body lumen opening comprising a stent in the form of a tube having an axis and having a flared distal end and a flared proximal end and a bulbous middle section.

- 1           2.     An apparatus as recited in claim 1 wherein a cross-sectional view of said tube  
2     orthogonal to said axis shows an irregular shape of said wall.

- 1            3.        An apparatus as recited in claim 2 wherein said shape is a polygon.

4. An apparatus as recited in claim 3 wherein said polygon is a hexagon.

5. An apparatus for maintaining a body lumen opening comprising a stent in the form of a tube having a structure defining a tube wall and having an axis, wherein a cross-sectional view of said tube wall orthogonal to said axis shows an irregular shape of said wall.

- 1            6.        An apparatus as recited in/claim 5 wherein said shape is a polygon.

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7. An apparatus for maintaining a body lumen opening comprising a stent in the form of a tube including a flexible wall, and having a wall adjustment apparatus for expanding and contracting a diameter of said tube.

1 8. An apparatus as recited in claim 7 wherein said adjustment apparatus includes a  
2 turn block.

1 9. An apparatus as recited in claim 7 wherein said adjustment apparatus includes a  
2 scissor jack.

Sub a3 10. An apparatus as recited in claim 1 wherein said tube is in the form of a balloon.

1 11. An apparatus as recited in claim 10 wherein said structure includes an inner wall  
2 defining a lumen through said tube, and said structure having an outer wall that expands upon  
3 inflation of said balloon to form said bulbous middle section.

4 12. An apparatus for maintaining a body lumen opening comprising a stent in the  
5 form of a tube having a tube wall, and said wall having a plurality of openings for ejection of  
6 material forced from an applicator probe inserted on an inside of said tube, said material ejected  
7 from said openings for providing interference with a body lumen wall in which said tube is  
8 placed and for prevention of migration of said stent.

Sub a4 13. An apparatus as recited in claim 1 wherein said stent further includes a coating of  
2 material on an outside of said tube wall.

1 14. An apparatus as recited in claim 13 wherein said coating is biodegradable.

1 15. An apparatus as recited in claim 14 wherein said coating is for the purpose of  
2 retaining said stent in a body lumen, and wherein said stent tube can be removed upon  
3 degradation of said material.

1 16. An apparatus as recited in claim 5 wherein said stent further includes a coating of  
2 material on an outside of said tube wall.

1 17. An apparatus as recited in claim 16 wherein said coating is biodegradable.

1 18. An apparatus as recited in claim 17 wherein said coating is for the purpose of  
retaining said stent in a body lumen, and wherein said tube can be removed upon degradation of  
said material.

1 19. An apparatus as recited in claim 7 wherein said stent further includes a coating of  
material on an outside of said tube wall.

1 20. An apparatus as recited in claim 5 wherein said stent is formed of sheet material.

1 21. An apparatus as recited in claim 20 wherein said stent is constructed by winding a  
2 length of said sheet material, wherein said length is a stepped configuration in a plane of said  
3 sheet material.

1 22. An apparatus as recited in claim 20 wherein said sheet material is in the form of a  
2 ribbon.

1 23. An apparatus as recited in claim 22 wherein said material is in the form of said  
2 ribbon bent in corrugations.

1 24. An apparatus as recited in claim 22 wherein said ribbon is bent to form a plurality  
2 of short protrusions and a single long protrusion, that is longer than said short protrusion, and  
3 said long protrusion is bent around said short protrusions.

25. An apparatus as recited in claim 23 wherein said ribbon is wound to form a  
plurality of turns.

26. An apparatus as recited in claim 25 wherein, upon compression of said stent, said  
corrugations of one turn interfere with corrugations of an adjacent turn to resist collapse of said  
stent, thereby said stent incorporating a self-locking feature.

1 27. An apparatus as recited in claim 5 wherein said stent structure includes a super  
2 elastic material.

566 457 28. An apparatus as recited in claim 1 wherein said stent includes a portion  
2 constructed from super elastic material.

1           29.    An apparatus as recited in claim 13 wherein said coating includes material  
2   selected from the group consisting of anti-microbial and pharmaceutical drugs.

1           30.    An apparatus as recited in claim 13 wherein said coating includes material  
2   selected from the group consisting of therapeutic agents, anti-inflammatory active agents, genes,  
3   vectors, vaccines, biological agents, cancer treatment drugs and radioactive isotopes.

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1           31.    An apparatus as recited in claim 1 wherein said tube includes slotted end sections  
2   and a slotted middle section to form separated ribs.

32.    An apparatus as recited in claim 31 wherein each said rib is creased radially  
outward to provide a narrow longitudinally extending surface.

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